Alberta Heritage Foundation
for Medical Research

Horizon scanning for health technologies relevant to Alberta

Report on a pilot project

David Hailey, Leigh-Ann Topfer,
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Additional information and comments relative to the information paper are welcome and should be sent to:

Director, Health Technology Assessment
Alberta Heritage Foundation for Medical Research
1500, 10104 – 103 Avenue
Edmonton
Alberta T5J 4A7
CANADA

Tel: 780-423-5727, Fax: 780-429-3509

FOREWORD

This information paper describes a pilot project on identification of potentially significant new health technologies. The work was initiated following a request from the Health Ministry for an 'early warning' process to provide advice on technologies that could be expected to impact on Alberta health care. The paper describes the development of an horizon scanning program, its operation during 1999 and 2000, and some strengths and limitations of this approach.

The pilot project came to an end in December 2000. Future horizon scanning activities are to be taken forward by the Canadian Coordinating Office for Health Technology Assessment under its Canadian Emerging Technology Assessment Program (CETAP), which will draw on the experience reported here.

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ORIGINS OF THE PROJECT

There has recently been increased interest in the provision of advice on emerging health technologies to decision-makers. Availability of such advice has been seen as a means of helping to avoid uncontrolled diffusion of innovations that have not been adequately assessed [8]. Prompt advice regarding the potential impacts of the introduction of a new modality can allow time to consider possible approaches to handling the technology within a health care system, including the initiation of health technology assessment (HTA), where appropriate.

In August 1997, during discussions regarding a project on health expenditure and technology, which has been described elsewhere, AHFMR received a request from the Health Ministry to put in place an 'early warning' process to identify new technologies that would be of significance to the province.

The feasibility of such an approach being undertaken by the HTA Unit was subsequently considered by the AHFMR 's Health Technology Assessment Advisory Committee (HTAAC). Significant issues discussed were the availability of resources to undertake horizon scanning and how extensive such a process might be. Further steps were taken in mid-1998 when the services of a librarian from the Institute of Health Economics (then known as the Institute of Pharmacoeconomics) became available to the HTA Unit on a part time basis.

DEVELOPMENT OF AN APPROACH

In the initial planning for this work, consideration was given to horizon scanning initiatives being undertaken by other HTA agencies. In Canada, the Canadian Coordinating Office for Health Technology Assessment (CCOHTA) had established its CETAP series of briefs [3], which focused mainly on pharmaceuticals. There were also programs by European agencies in the Euroscan network, which included the Horizon Scanning Centre in the UK established at the University of Birmingham [2]. At the time, these other horizon scanning activities were in the early stages of development. The CCOHTA briefs were a useful resource, but provided only limited coverage of new technologies which might be of relevance to Alberta. Details from the programs in Europe were sparse and these were not a viable information source for the province.

Further issues considered included:

- ***How early is early warning?*** It was decided that a notional time horizon of three years would be used – technologies that might become available to Albertans within that period would be considered.

- *Sources of information* might include Internet biomedical news sites, journals that were routinely received, the F-D-C Grey Sheet, other publications in this area and requests for information received by the HTA Unit. Use of sentinel groups in one or two key areas such as cardiology might also be considered.
- *Scope of the early warning system.* A broad focus would be adopted, with flexibility in the selection of topics. Key areas would be devices, procedures and drugs. Technologies that were available in the U.S.A. would be of interest, given the potential for out of province referral and also possible subsequent marketing approval within Canada.
- *Criteria for selecting topics* might include those technologies that related to a large patient population or serious medical conditions, those which might have substantial cost implications and those that might give rise to ethical issues.
- *Material to be extracted from the information sources* would include evidence for how well the technology worked, the patient population that would be affected, any economic implications (mainly qualitative data), safety considerations and comparator technologies.
- *The format of the advice* would be briefs of about one page in length which would include standard headings and the source of the information and be made available in a variety of formats (e-mail, Internet and print).
- *Feedback on the project* would be solicited at the one-year mark, or sooner. For example, key recipients might be asked if they needed more information on the technologies described in the briefs, and how they were using this information.
- *Follow up* – it was felt that there should be a process for re-examining the topics every few months. Also, the early warning system should be tied into the overall HTA program, so that the topics chosen could be used to flag key issues for future work.

A start was made by gathering news on emerging health technologies from some of the main Internet sources to obtain an indication of issues that might be worth considering. Table 1 shows topics selected in July and August 1998 as having potential for follow up with early warning briefs. This list was provided to HTAAC at its meeting in September of that year to give an illustration of the potential scope of the project.

Table 1: Health technologies identified in preliminary scans

July 17, 1998
• Laparoscopic bowel resection
• Islet cell transplantation
• Stem cell transplant in Parkinson's (animal)
• Colorectal cancer prognosis – test - and followup
• Photodynamic imaging – no details (patent)
• Left ventricular assist device (LVAD) - new design
• Angiogenesis
• Biolon – lubricant for ophthalmic procedures
• Artificial tissue for venous insufficiency ulcers (eg. diabetic foot ulcers)
• Laser surgery for far-sightedness
• Stem cell concentrator
July 31, 1998
• Noise-induced hearing loss
• Bioartifical liver
• Polymers for bones and joints
• Electropotential measurements in breast cancer
• Device for tinnitus
• Transplanted skeletal muscle to heart (animal)
• Transmyocardial revascularization (TMR)
• Percutaneous transmyocardial revascularization (PTMR)
• US method for prostate brachytherapy
• Monoclonal antibody to Vascular Endothelial Cell Growth Factor , for metastatic breast cancer (VEGF therapy)
• Serodur – chemo delivery for glioma
• Procedure for intractable high blood pressure
• Cryoablation for liver cancer
• Update cryosurgery for prostate cancer
August 18, 1998
• Microvascular decompressions for essential hypertension
• Intraluminal shunt for bypass procedures
• Minimally invasive peripheral artery bypass
• Laser for diagnosis of retinal disease
• PRK or LASIK for myopia correction

Table 1: Health technologies identified in preliminary scans (cont'd)

August 26, 1998
• Genetic testing of patients with colorectal cancer
• Pharmacist-run anticoagulation clinics
• Dendritic cell-based immunotherapy for prostate cancer
• Non-invasive bilirubin analyser
• Software for external defibrillators
• Islet cell autoantibody test for development of type 1 diabetes
• T-wave alternans technology
• Laser for TMR

The following points were put forward for consideration at the September 1998 meeting of HTAAC:

- Given the enormous diversity of health care technologies and limitations of resources, no attempt would be made to provide any sort of comprehensive coverage. Rather, the approach would be to scan a range of information sources relating to new developments in health technologies and, from these, derive summaries of issues of interest to decision-makers within the province.
- Description would be provided through very short briefs to alert decision-makers to possible developments; detailed discussion and description of the technology issue in question would not be attempted.
- The major focus would be on technologies which had not yet come to market, or into use in Alberta. There might also be interest in new applications of technologies that were already in place.

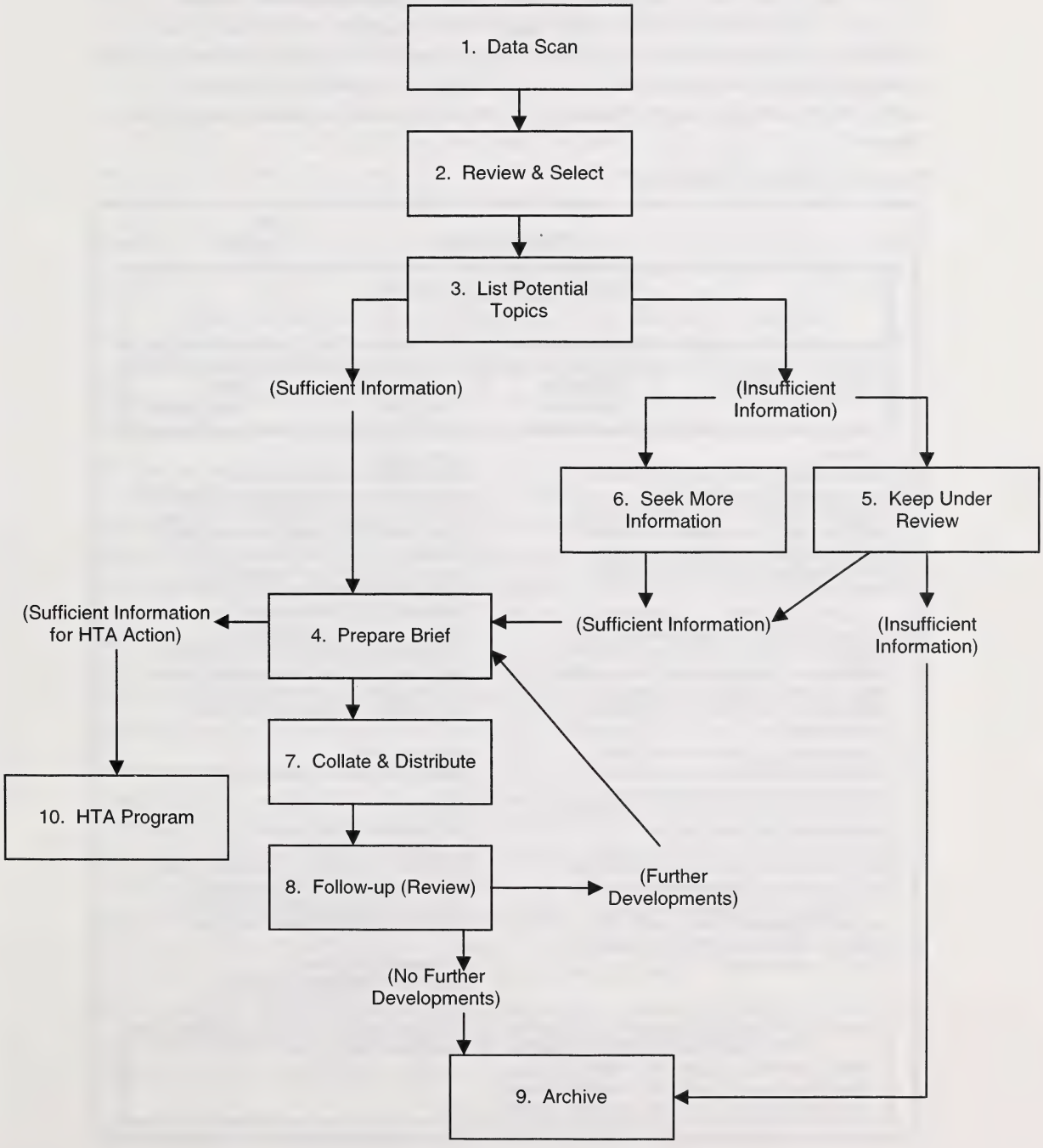
An outline of the elements of the emerging technology program was also presented to HTAAC, as summarised in Figure 1.

HTAAC agreed that the project should proceed further and that potential recipients of the briefs should be contacted. Such information was thought likely to be of interest to regional health authorities (RHAs), which should also be approached. The HTA Unit wrote to contacts in Alberta Health and the RHAs asking whether such 'early warning' briefs would be of interest as a source of information on emerging developments in health technologies. They were also asked if the information would be helpful for decision making, whether there were any specific types of health technology which were of interest, if the briefs should be sent electronically, as hard copy or both, and how frequently agencies would wish to receive such information.

Responses were received from two contacts in Alberta Health and from three RHAs. All expressed interest in receiving the briefs and most indicated that they would wish to receive them electronically. None of the respondents indicated a

specific interest in particular types of technologies. On the basis of these responses it was decided to send the briefs by e-mail as a batch once per month.

Figure 1: Elements of the emerging technologies project



OPERATION OF THE PILOT PROJECT

Preparation and distribution of Techscans began in April 1999. Following the experience gained with preliminary work, the Techscans were issued as one-page briefs that included information on the purpose and status of the technology (experimental or marketed), a summary of available evidence, a short commentary, the source of the information, organizations involved and keywords to describe the technology. An example of a Techscan is shown in Figure 2.

Figure 2: Example Techscan

Date: 1199
Number: 9933

TECH SCAN

BRACAnalysis genetic test

Purpose: Test for indicators of susceptibility to breast and ovarian cancers

☒ **Experimental** ☒ **US Market Approval** ☐ **CAN Market Approval** ☐ **New Application**

Summary:
Myriad Genetics, Salt Lake City, provide a genetic test (BRACAnalysis™) for mutations in the BRCA1 and BRCA2 genes, giving indicators of susceptibility to breast and ovarian cancer. The presence of a mutation substantially increases the risk of breast cancer.

The test is offered, through physicians, to individuals who have been diagnosed with breast cancer at any early age, have a family history of breast and/or ovarian cancer, or have a relative who is a BRCA1 or BRCA2 mutation carrier.

A recent case considered by the Ontario Health Insurance Plan has drawn attention to the demand for this type of service. There are no laboratories in Canada which currently offer this genetic test for breast/ovarian cancer. However, Myriad can provide the test kit to physicians outside the US, with the kit being couriered back to the company for the test after the sample has been introduced. The cost is $2,400 US for a 21 day turnaround, with a higher charge for quicker results.

Commentary:
Considerable research has been undertaken in developing tests for mutations in the BRCA genes. Availability of the test is one of the many issues concerning this technology. These include appropriate selection of patients and availability of appropriate advice to the women concerned from health care professionals.

A recent report from CCOHTA has commented on ethical issues arising from genetic testing for hereditary breast cancer, including informed consent, privacy and confidentiality, and familial implications.

Organization(s):
Myriad Genetics Inc., Salt Lake City

Source(s):
http://pslgroup.com/dg/c9de/htm
http://www.myriad.com
Noorani HZ, McGahan L. Predictive genetic testing for breast and prostate cancer. Ottawa: Canadian Coordinating Office for Health Technology Assessment, 1999.

Reference/Index Terms:
Mesh: Breast Neoplasms//Genetic Predisposition Testing//BRCA1 Gene

Comments or suggestions would be welcome and should be directed to:
Health Technology Assessment Unit
Alberta Heritage Foundation for Medical Research
Fax: (780) 429-3509 E-mail: postmaster@ahfmr.ab.ca

Some changes were made to the criteria and approach that had been canvassed during the preliminary work. It was decided that reports dealing with animal and basic medical research would not be considered. Also, topics that appeared to be no more than minor developments to health technologies would be excluded. The general criteria for selection of technologies still seemed appropriate. However, it was recognised that there was also a need to provide advice on technologies that might affect only small numbers of patients, but that would require administrative decisions on financial support, including out-of-province referral. The health ministry had frequently requested information on such technologies in the past, some of which had been the subject of rapid technology assessments by the HTA Unit [4].

During the first phase of the project, for the remainder of 1999, preparation and distribution of Techscans were undertaken by two health researchers from the HTA Unit and a librarian, with some support from other HTA program staff.

The librarian scanned and compiled a batch of news materials each week. After some initial selection on the basis of the agreed criteria for the project, print copies of the information were given to the researchers for review and selection of topics that were of potential interest and relevance to the program.

In some cases a brief report could then be written. In others, details in the media or other releases were insufficient, particularly in regard to the status of the technology in Canada, and additional information was sought. This was the responsibility of the librarian and represented a significant proportion of her time on the project. Additional sources, such as *PubMed*, were generally used to provide verification on the accuracy of the media reports. Where necessary, information was also obtained from the manufacturer, Health Canada, or from physicians who were already using the technology. In some cases potential topics turned out to be unsuitable - for example, because the technology had already been introduced or was likely to be superseded in the short term.

In the second phase of the project, from late 1999 to the end of 2000, fewer staff resources were available and an attenuated approach to Techscan preparation was adopted. Responsibility for identification of topics passed to the AHFMR librarian. Because of time constraints, the librarian provided electronic advice of potential topics to HTA staff on the basis of occasional scans of Internet media sources and consideration of stories from these against the project criteria. Techscans were prepared as HTA research availability permitted. Checking and follow up of news stories continued, but to a lesser extent.

Staff resources used in the first phase of the project were estimated as 0.75 full time equivalents (FTE). Staff resources used in the second phase were substantially less – probably no more than 0.3 FTE.

Sources of information

The principal sources of information used in 1999 were the media news services shown in Table 2. Additional print material, such as medical journals and newspapers were also scanned. This approach involved a judgement as to which sources would be likely to produce information that was useful to the project. A more comprehensive scan would have been too time consuming.

The Internet medical news sources provided the first information obtained on the technology in most cases and were used in the preparation of all the briefs. In many Techscans, journal articles also formed part of the initial story or provided background detail. Other sources of information included stories in Canadian newspapers or radio programs, magazine articles, proceedings of a conference, an in-house HTA project and a personal communication from a contact in The Netherlands.

Several of these Internet media news services also provided the main sources of information during 2000. Journal and newspaper articles again proved useful.

Dissemination of information

The Techscans were sent to contacts in Alberta Health and RHAs who had expressed interest, as agreed during the preliminary work on the project. The full text of each brief was also posted on the AHFMR website (http://www.ahfmr.ab.ca) for about six months, with the title left for reference after that. Announcements of the pilot project were included in the Unit's HTA newsletter, *Tech-Wise,* and in the newsletter of the International Network of Agencies for Health Technology Assessment (INAHTA). Brief items on some of the topics covered in Techscans were included in subsequent issues of *Techwise.*

During 2000, following feedback from a survey of opinion on the pilot project, which is referred to later in this paper, distribution arrangements were strengthened. E-mail advice was supplemented by paper copies of the Techscans, which were sent to all RHAs in the province.

Presentations on the pilot project were made in 2000 at the Annual Meeting of the International Society for Technology Assessment in Health Care [5] and at a symposium on horizon scanning organised by CCOHTA[7]. A paper describing the first phase of pilot project was accepted for publication in a peer reviewed journal [6].

Table 2: Internet sources used in scanning for emerging health technologies

- ReutersHealth (http://www.reutershealth.com/) Both the consumer health and medical news section were scanned on a daily basis. (NB: Shortly before the pilot project ended the subscription fees for access to ReutersHealth increased substantially. Although the consumer health section is still available free of charge, the cost of accessing the medical news is beyond the means of the project budget. However, throughout most of the pilot project this site was a valuable source of information on emerging technologies.
- News Edge News Page (http://pnp1.individual.com/) This site was not routinely scanned during the pilot project, however, as it appears to offer similar coverage to ReutersHealth, and is available without charge, it may provide a suitable alternative source of information.
- Health Clips Subscription Service (http://www.sdh.sk.ca/hsurc/Clipsubscribe2.htm) The Health Services Utilization and Research Commission of Saskatchewan offers this free, daily news service. Information focuses on news relevant to health care and health policy in Canada.
- MedScape (http://www.medscape.com/) This site offers a weekly e-mail news service, or can be scanned directly for daily medical news.
- F-D-C Reports (http://www.fdcreports.com/) Although the web site only offers summaries of most of the news in the print newsletters, it was still a useful source. The Blue Sheet and the Gray Sheet newsletters were the two routinely scanned.
- EurekAlert (http://www.eurekalert.org/) The American Association for the Advancement of Science web site covers news in all fields of science. Most items include lengthy abstracts, often with links or contact information for the scientists or company involved in developing the technology. The titles were scanned weekly and relevant health-related items were printed for review.
- Food and Drug Administration (http://www.fda.gov) This site has an excellent search engine and was often useful in finding background information on particular drugs and devices, for example, transcripts from approval hearings, etc. The "new" section can be scanned to find the most recent information added to the site.
- HMS Beagle (http://www.biomednet.com/hmsbeagle) This site offers a free, weekly e-mail subscription service for the latest developments in medicine.
- Medical Breakthroughs (http://www.ivanhoe.com) Another free, weekly e-mail service of medical news. This one focuses on U.S. medical news of particular interest to patients.
- Doctor's Guide (http://www.pslgroup.com/mednews.htm) The site includes an archive and search engine for retrieving earlier news items. The free, weekly e-mail subscription can be obtained by filling out the registration form at: http://www.pslgroup.com/visitors/dgemail.htm

OUTPUT FROM THE PROJECT

During 1999, 37 Techscans were issued in eight monthly batches from April to November. A further 35 briefs were produced in 2000, in nine batches, with the last being issued in December. Details of the Techscans are given in Table 3, with an indication of the purpose of each technology, its marketing status at the time the brief was prepared and explanatory comments. Forty-one of the 72 technologies covered had received regulatory approval (marketing or licensing), nine of these in Canada, at the time the Techscan was prepared. Twenty-six technologies could be categorized as devices, 13 as procedures (five with some emphasis on use of a device), 15 as drugs or reagents (four of which were linked to a device) and 18 as diagnostic.

The technologies covered in the Techscans varied in the possible timing of their future impact on Alberta and the way in which they might influence health care. Briefs on products that had received marketing permission in Canada but were not yet in Alberta provided short - term alerts on technologies that could be expected to soon be introduced into the province. These included technologies, such as multifocal intra-ocular lenses, that would be used by large numbers of consumers. Several technologies available in the USA appeared to be candidates for requests for out of province referral. Some topics, such as the endo-esophageal MRI coil, reflected the evolution of established techniques. Others, such as robotics in surgery indicated possibly more important shifts in the application of technology. In most cases the briefs raised the need for further information or assessment of the technology in the context of the Alberta health system.

There was no systematic follow up of the technologies covered in the briefs, but the potential for Techscans to assist health care decision makers can be illustrated by activities related to some of the topics listed in Table 3.

In several cases (Relenza, Tamiflu, Rebetron, Etanercept and Rituxan) drug products were subject to consideration by the ministry for inclusion in the provincial formulary. Sacral nerve stimulation and multi-focal intraocular lenses are examples of non-drug technologies that arrived in the province after Techscans were prepared and were being considered for reimbursement coverage. Advice from local ophthalmologists suggested that a follow up assessment of Visudyne would be desirable to provide guidance on its use within the province. An assessment of this therapy was requested by the health ministry and a Technote was prepared by the HTA Unit [(1)]. The brief on Aquaflow provided information for inter-provincial negotiations, and that on the free electron laser was followed up by an RHA which had concerns over its possible use within hospitals. Techscans on Ablatherm and the Cyberknife provided further information on areas of ongoing interest to the health ministry (treatments for prostate cancer and stereotactic radiosurgery).

Table 3: Technologies covered in Techscans

Date	Technology	Disease/ condition/use	Status	Comments
		Devices		
0599	Voice controlled arthroscopic pump	Minimally-invasive orthopedic surgery	USA	Advance in surgical technology
0499	Low intensity ultrasound for non-union fractures	Promotion of bone healing	USA	Alternative to electrical stimulation
0999	CaverMap™ Surgical Aid	Prostatectomy	USA	Nerve-sparing surgical approach
0999	Sacral nerve stimulation	Urge incontinence	CAN	Not yet in Province
0499	Ablatherm™	Prostate cancer	EXP	Further treatment option (Ultrasound) for localised disease
0599	Radiofrequency catheter ablation. 64 electrode basket catheter	Abnormal heart rhythms	EXP	New device for established procedure
0599	Multifocal intraocular lenses	Cataract	CAN	Not yet in Province
0899	CyberKnife®	Head, neck and spinal cancer	USA	Extension of radiosurgery scope
0999	Photon radiosurgery system	Various types of cancer	USA	Invasive approach using soft X-rays
0499	Percutaneous electrical nerve stimulation	Severe back pain	EXP	Short term relief
0599	Repetitive transcranial magnetic stimulation	Treatment-resistant depression	EXP	Possible replacement for ECT
1099	Implantable pulse generator	Facilitate breathing following neck surgery	EXP	Pacemaker for paralyzed larynx
0300	Free electron laser	Brain tumors	EXP	Hope for more precise targeting of abnormal tissue.

Table 3: Technologies covered in Techscans (cont'd)

Date	Technology	Disease/ condition/use	Status	Comments
		Devices (cont'd)		
0300	Vagus nerve stimulation	Treatment-resistant depression	EXP	New indication for approach used in refractory epilepsy
0300	Reliefband	Post-operative nausea	USA	Battery-powered device, adjunct to anti emetics
0300	Gliasite radiation system	Brain neoplasm	EXP	Balloon catheter for brachytherapy
0400	Aquaflow	Glaucoma	EXP	Collagen drainage implant
0500	Intensity Modulated Radiation Therapy	Various cancers	*EXP*	Development in conformal radiotherapy
0500	Liver Dialysis Unit System.	Acute hepatic encephalopathy ; drug overdose	USA	Sorbent-based, blood detoxification system
0700	Da Vinci surgical system	Laparoscopic surgery	USA	Computer-enhanced device for surgical procedures
0800	Somnoplasty system	Reduction of enlarged tonsils in adults.	USA	Temperature-controlled RF radiation. New application of device already approved for sleep apnea
0900	Focal seal L	Lung surgery	USA	Material for sealing air leaks
0900	Needle laser ablation	Breast cancer	EXP	Alternative to surgery for small breast tumours
1100	Multichannel auditory brainstem transplant	Neurofibromatosis 2	USA	Provision of hearing to persons with this condition
1100	OsaTron extracorporeal shockwave device	Plantar fasciitis	CAN	Non-invasive management option where conservative treatment unsuccessful.
1200	BLU-U™ Photodynamic Therapy Illuminator	non-hyperkeratotic actinic keratoses	USA	Photodynamic therapy approach with blue light and aminolevulinic acid

Table 3: Technologies covered in Techscans (cont'd)

Date	Technology	Disease/ condition/use	Status	Comments
		Procedures		
0599	Corneal epithelial stem-cell transplantation	Severe ocular surface disorder	EXP	
0999	Mitral valve reconstruction	Congestive heart failure	EXP	
1099	Vertebroplasty	Vertebral fracture	USA	Use of cement
0599	Radiofrequency ablation of excess tongue tissue	Sleep apnea	EXP	For cases unresolved by surgery
0499	Neuronal cell transplants	Stroke	EXP	Potential to diffuse before validated
1099	Endoscopic beating heart CABG	Coronary artery disease	EXP	Robotic approach to minimally invasive surgery
1099	Laser assisted myringotomy	Otitis media	USA	Alternative for those who fail antibiotic treatment
0599	Intestinal transplantation	Replace intestine after disease or trauma	EXP	Number of centres, 1 in Canada, performing procedure
0599	Fetal cell transplant	Parkinson's Disease	EXP	Only modest benefit suggested
0400	Tonsillar coblation	Tonsillitis	EXP	Use of RF probe to shrink tonsil
0400	Endoscopic suturing	Gastroesophageal reflux	USA	Minimally invasive approach, outpatient procedure
0800	Retinal tissue transplant	Retinitis pigmentosa , other retinal diseases	EXP	Treatment for blindness
0700	Mini tracheotomy	Sleep apnea	EXP	Less invasive approach, new application of lolder procedure
		Drugs and reagents		
0899	Zanamivir for inhalation (Relenza®)	Influenza A and B	USA	Under consideration for Canada
1099	Oseltamivir phosphate (Tamiflu®)	Influenza A and B	USA	In competition with Relenza
0899	Microsphere delivery of 5-fluorouracil	Glioblastoma	EXP	Seeking Canadian approval
0899	Photofrin®	Lung cancer	CAN, USA	Photodynamic therapy; newer drugs in prospect

Table 3: Technologies covered in Techscans (cont'd)

Date	Technology	Disease/ condition/use	Status	Comments
		Procedures (cont'd)		
0999	Visudyne	Age-related macular degeneration	EXP	Photodynamic therapy
0499	Tin-117m DTPA	Bone cancer	EXP	Pain control
0499	Rebetron	Chronic hepatitis C	CAN	Not in Province, further option for Hep. C treatment
1099	GlucoNorm®	Type-2 diabetes	CAN	Not yet in Province
1099	PROSORBA® blood filtration column	Rheumatoid arthritis	USA	Use in association with apheresis
0100	Etanercept	Rheumatoid arthritis	USA	Tumor necrosis factor inhibitor
0100	Melacine vaccine	Malignant melanoma	CAN	Treatment of late stage disease
0400	Hepagene vaccine	Hepatitis B	EXP	Treatment of chronic disease
0400	Rituxan	Non-Hodgkin's lymphoma	CAN	MCA -based treatment for frail patients
0500	Theratope	Breast cancer	EXP	Vaccine for metastatic disease
0800	Hemolink® in (CABG)	Coronary artery by-pass grafting	EXP	Intended to reduce or avoid the use of donor red blood cells; hemoglobin replacement product
		Diagnostics		
1099	Endo-esophageal MRI coil	Abdominal imaging	USA	Improvement in image quality
0699	Rapid cholesterol test	Skin cholesterol	EXP	Non-invasive, non-laboratory test
0699	Tc-99m labeled antibody fragment for osteomyelitis	Osteomyelitis in diabetics	EXP	
0899	AD7C urine test for NTP protein	Alzheimer's Disease	USA	Biochemical marker for disease
0699	Genotypic HIV resistance testing	HIV	EXP	Selection of treatment design for persons with HIV
0699	Continuous glucose monitoring system	Diabetes	USA	Additional approach to management of blood glucose levels

Table 3: Technologies covered in Techscans (cont'd)

Date	Technology	Disease/ condition/use	Status	Comments
		Procedures (cont'd)		
1099	BRACAnalysis™ genetic test	Breast and ovarian cancers	USA	Test for susceptibility to these cancers
0100	Fetal MRI	Pre-natal diagnosis	USA	Use of fast scanning techniques
0100	NOWs pneumoniae test	Pneumonia	USA	Near-patient testing product
0700	BreastCare®/BreastAlert®	Breast cancer	USA	Adjunctive diagnostic method
0700	FolateScan	Ovarian cancer	EXP	Nuclear medicine test for detection of this cancer
0700	Oxifirst	Fetal assessment during labour	USA	Fetal oxygen monitor
0800	Cholesterol testing device	Home monitoring of cholesterol	USA	Testing linked to use of a smart card for data transmission
0800	HomMed monitoring system	Home telemonitoring	USA	Remote medical evaluation of persons in their homes
0800	HbA1c monitor	Diabetes	USA	Near- patient testing approach to measurement of glycated hemoglobin
1100	Ingestible imaging capsule	Imaging of GI tract	EXP	Less invasive and potentially more comprehensive method for imaging small intestine
1100	'Soft copy' digital mammography	Breast cancer	USA	Use of computer workstation for screening and diagnosis, rather than reading X-ray films
1200	Cardiac Navigation System	Ischemic heart disease	CAN	Approach to real time mapping of cardiac blood flow

EXP: Experimental – technology not approved for marketing or not licensed; USA: Marketing approval or available in the USA; CAN: Marketing approval in Canada

OPINIONS ON THE PROJECT

Eight months after implementation of the project, comments on the relevance, timeliness and format of the Techscans were solicited from the ministry of health, RHAs and professional bodies through questionnaires and discussions. In the health ministry, three persons from the Policy and Planning, Health Strategies and Health Plan Administration divisions were contacted and provided responses. Of the 16 RHAs that were contacted, five responses were received from medical directors. In addition, 18 questionnaires were returned from 48 participants in the Foundation's SEARCH program and five from 22 professional organizations.

All contacts in the health ministry and the five medical directors from the RHAs indicated that they had found the information provided by the briefs to be useful, and wished to continue receiving the Techscans. However, there had been little use of the Techscans within policy and planning processes.

Thirteen of the 18 community health research trainees from the SEARCH program who provided responses also wished to continue receiving the briefs. About half of the responses from the SEARCH participants and the professional organizations reported that Techscans were not of immediate relevance to the area they were working in, though they could see utility in the briefs being passed on to the appropriate people within health authorities.

The most detailed feedback was obtained from the respondents in the health ministry. They advised that the Techscans increased the volume of information that the ministry had at its disposal. In the claims area of Health Plan Administration Division, the Techscans were useful in providing initial information in handling some of the barrage of issues that were dealt with, often on an urgent basis, many involving decisions on payment for services for individual patients. Information on the status of the technology was of particular interest. Many of the topics covered by the briefs had been brought to the attention of the ministry within the last year. Hard copies of the briefs were to be held as source material.

The Techscans were seen as potentially helpful in the Policy and Planning area and in decisions on updating the schedule of services covered in the province. In the future, they could provide useful input to a New Procedures Committee within the ministry which was to advise on planning and editing of the schedule of services. In the Health Strategies Division, briefs dealing with drugs had provided background information for the area concerned with pharmaceutical policy and programs.

A number of comments were also received from assessors and decision makers in other jurisdictions, who had accessed the Techscans via the Foundation's website. The HTA program received enthusiastic reaction on the relevance of the information provided and format of the briefs from others

involved in HTA in Sweden, Germany, Hong Kong, The Netherlands, Belgium and Austria.

Discussion

The AHFMR emerging technologies project was undertaken in response to a request for 'early warning' at a senior level in Alberta Health. Experience of developing the Techscan concept and then providing briefs during 1999 and 2000 indicates that the request from the Health Ministry was met by the pilot project. The project throughout was driven by pragmatism. It was taken forward in the realisation that resources were sparse and that the output would need to be concise. The one page Techscan briefs have provided information a substantial number of emerging health technologies, functioning as 'alerts' with limited (though important) added comment from an HTA perspective. In terms of coverage of technologies, the advice on 72 topics in 20 months compares favorably with other horizon scanning initiatives.

The project focused specifically on issues that might be of concern to Alberta decision-makers in the short - medium term (within three years), considering events in the US as well as in Canada. The Techscans were well received by decision makers who indicated that they wished to continue receiving them. Comments from contacts in other countries were all favorable. Many features of the project, including information sources, principles of coverage and limits on the process were similar to those for the Clinical Practice Alert Newsletter of the University Health System Consortium in the US, which have been described by Wagner [9]. A further useful outcome of the project was the provision of topics for student papers as part of a course on Health Technology Assessment in the Department of Public Health Sciences at the University of Alberta.

However, despite these positive features, this experience of initiating an 'early warning' program within a provincial health care system has raised some issues regarding the process of providing such advice for informing health policy. The future of horizon scanning initiatives will depend on the value placed on the provision of timely information and the capacity to use it. These matters were not fully resolved in the pilot project.

Preparation of the Techscans - process details

Effective scanning for relevant emerging health technologies requires familiarity with the local and national health care systems, and experience in health technology assessment. There is a need for awareness of the types of technologies that might be of key interest to health care decision makers, and of the kind of information required by them.

The Internet news sources that formed the basis for the selection of technologies were not usually sufficiently detailed or accurate for the preparation of the briefs. It is time consuming to obtain further data, for

example on the status or availability of the technology. It is particularly difficult to determine the level of diffusion of non-regulated technologies, such as surgical procedures. The inclusion of a librarian in the project team can reduce the time required of other researchers in searching for such information, and should be regarded as essential. A bonus to the scanning process was that the librarian was often able to identify information relevant to current assessment projects.

Although the information they provided was concise, the preparation of the Techscans required considerable research effort. They represented a distillation of available information and provision of brief comments to put the advice in appropriate context for the health care system. This selection and interpretation process depended on the experience of the project staff in the field of HTA, and comprised a largely intangible decision-making process, rather than a more explicit framework that would have required additional resources. Input from at least one person with HTA expertise and knowledge of health care systems is essential both for selection of topics and provision of commentary. This relatively informal process seemed successful in eliminating stories that did not cover technologies that were truly emerging or that would not represent significant policy issues.

The dissemination approach used to reach core decision makers was to send email, and later print versions, of the Techscans to contacts in the Health Ministry and RHAs. Wider coverage was provided through inclusion of Techscans on the AHFMR website. This was successful as a means of disseminating information, judging from the feedback received from other assessment groups. The comparative difficulty of locating Techscans with the current format of the website was a disadvantage.

At a late stage in the project, some attempt was made to monitor the number of website hits on selected Techscans [7]. Details are shown in Appendix A. This could be a useful source of data for the future, if such a system could be upgraded to identify the sources of the hits.

Staff resources for the project were limited, with an estimated 0.75 FTE during 1999 and decreasing to about 0.3 FTE the following year. The process was sufficiently robust by the second year for useful progress to be maintained, but was clearly inadequate to provide optimum coverage and appraisal of topics. It was never possible to undertake systematic follow up of topics covered in the Techscans, as had been contemplated during the preliminary work on the project. A viable permanent horizon scanning process would need assurance of greater resources, including a librarian and researchers with HTA expertise, as mentioned previously.

Scope of the Techscan topics

The Techscans described technologies related to a variety of diseases and conditions (Table 4). In addition to the most common areas, a further seven of the briefs related to surgical technologies. Selection of these topics was determined by the criteria set for the project, though their emergence in the

media news sources would have been influenced to some extent by journalistic preferences and information dissemination machinery available to the developers or promoters of the technologies. This was far from a full, systematic search and retrieval process. It is possible that the potential significance of some topics that were not selected was not apparent to the project team. In addition, decisions were taken from time to time not to cover topics that were evolving very rapidly and where media stories tended to give news of minor incremental advances.

On the other hand, all of the topics selected were considered to raise issues of potential significance to health care decision makers in Alberta and to health technology assessors. Overall, it was felt that the Techscans that were prepared gave a reasonable profile of potentially significant technologies that were emerging during the period of the pilot project.

Table 4: Most common areas covered by Techscans

Type of disease or condition	Number of Techscans
Cancer	19
Cardiovascular	8
Ophthalmic	5
Diabetes	4
Infectious diseases	4
Mental health	3
Gastrointestinal	3
Hepatic	3
Obstetrics & gynecology	3
(Surgical technologies)	7

Techscans and health care decision makers

Feedback from decision makers in the province was positive, and some further information was given in the rather limited response from SEARCH participants. Respondents wished to continue receiving the briefs and saw them as a useful source of information. There were indications that some briefs had been helpful to decision makers.

However, there was little use of the Techscans for planning purposes during the period of the pilot project. There seemed a mismatch between the rapid preparation and delivery of the Techscans and the slower and less focused processes within the health agencies. The limited reaction to the advice provided may in part reflect pressures within health care bureaucracies during a period of substantial administrative change. It may also indicate a potential limitation to such a program – decision makers may not have had appropriate machinery for using information of this sort. This is a matter that needs further consideration by the Health Ministry.

Advice of the sort provided through the Techscans has the potential to assist the policy process through triggering planning for future response to requests for services. They may indicate areas which require monitoring or assessment by the HTA Program. However, for this potential to be realised, there is a need for assimilation and response to the information system within the policy–making structure.

Horizon scanning and the HTA program

The pilot project resulted in an increase in information coming to the attention of the HTA Unit, though this was not kept closely under review throughout 1999 and 2000. Regular review of news items, with short term additional work on selected topics, can provide a useful resource for the knowledge base of an HTA program and a lead in to future assessments. This potential was only partly realised during the pilot project. There was some useful input to assessment work, as with the Technote on Visudyne [1] and additional information for a project on telemedicine, but information from Techscans did not in general flow through to the formulation of the HTA Unit's work program.

Those who were involved in the preparation of Techscans found this to be useful training in HTA, through identification and appraisal of key issues and presentation of sometimes complex concepts in a very concise format. Involvement of other HTA staff in the Unit would have widened this educational impact, increased internal awareness of the program and provided back up in the event of staff absences. For various reasons, this did not happen. Availability of resources within the HTA Unit was a concern.

The pilot project established the feasibility of providing short alerts on emerging health technologies for a provincial health care system. It also suggested the value of this process as a means of expanding the HTA knowledge base. However, the process for identifying the target audiences in government and health care delivery agencies, the methods of transmitting the information to these audiences, and the value of such information to health policy makers needs further consideration.

Also, any horizon scanning process should be fully integrated with an ongoing HTA program. A direction for the future is to increase interchange of information with other agencies involved in horizon scanning as their programs start to mature.

APPENDIX A: WEBSITE HITS ON SELECTED TECHSCANS

Hits recorded on the AHFMR website, January – August 2000

Date of Techscan	Techscan topic	Number of hits
May 1999	Transcranial magnetic stimulation	44
January 2000	Etanercept	42
	Melacine	68
April 2000	Tonsillar ablation	55
	Aquaflow	41
	Rituxan	51
	Endoscopic suturing	70
May 2000	Theratope	77
	IMRT	45
	Liver dialysis	61

Note – hits include access by members of the HTA Unit.

REFERENCES

1. Alberta Heritage Foundation for Medical Research. *Visudyne™ therapy for the treatment of age-related macular degeneration,* Technote TN22. Edmonton: July 2000.
2. Carlsson P, Jørgensen T. (eds.), Early identification and assessment of emerging health technology. *International Journal of Technology Assessment in Health Care*, 1998,14,603–95.
3. Canadian Coordinating Office for Health Technology Assessment. *Emerging Technologies Program.* http://www.ccohta.ca/main-e.htm
4. Hailey D, Corabian P, Harstall C, Schneider W. The use and impact of rapid health technology assessments. *International Journal of Technology Assessment in Health Care.* 2000;16(2):651-56.
5. Hailey D, Wills F, Topfer L-A. Too soon? Too little? Too late? Providing information on emerging health technologies to provincial decision makers. *16th Annual Meeting of the International Society of Technology Assessment in Health Care*, The Hague, June 2000.
6. Hailey D, Topfer L-A, Wills F. Providing information on emerging health technologies to provincial decision -makers: a pilot project. *Health Policy* (in press).
7. Juzwishin D. Scanning emerging technologies in Alberta. *Early assessment of health technologies symposium,* Ottawa, October 2000.
8. Robert G, Stevens A, Gabbay J. Early warning systems' for identifying new healthcare technologies. *Health Technology Assessment*, 1999, 3(13).
9. Wagner W. Identifying new and emerging technologies for the Clinical Practice Alert newsletter. *Health Technology Assessment* newsletter 2000;12(3):6.